

CHISOLM, (J. J.)

al

The Great Value of a 0.25 D. Cylinder in the Relief of Headache and Eye Pains.

BY

JULIAN J. CHISOLM, M.D.,

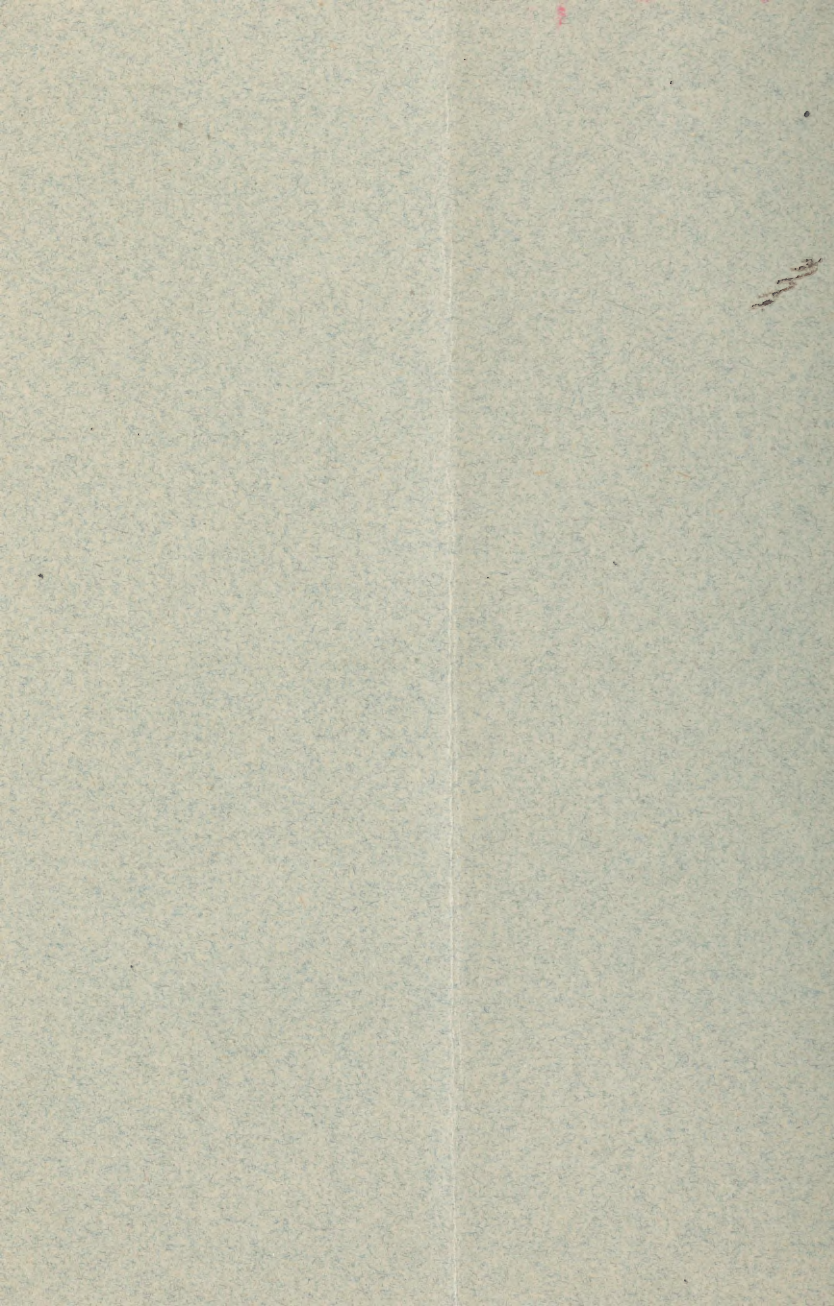
PROFESSOR OF EYE AND EAR DISEASES IN THE UNIVERSITY OF
MARYLAND, AND SURGEON-IN-CHIEF OF THE PRESBYTERIAN
EYE AND EAR CHARITY HOSPITAL OF BALTIMORE.

*Read in the Section on Ophthalmology and Otology, at the Thirty-ninth Annual Meeting of the American Medical Association,
May, 1888.*

Reprinted from the "Journal of the American Medical
Association," October 27, 1888.



CHICAGO:
PRINTED AT THE OFFICE OF THE ASSOCIATION.
1888.



The Great Value of a 0.25 D. Cylinder in the Relief of Headache and Eye Pains.

BY

JULIAN J. CHISOLM, M.D.,

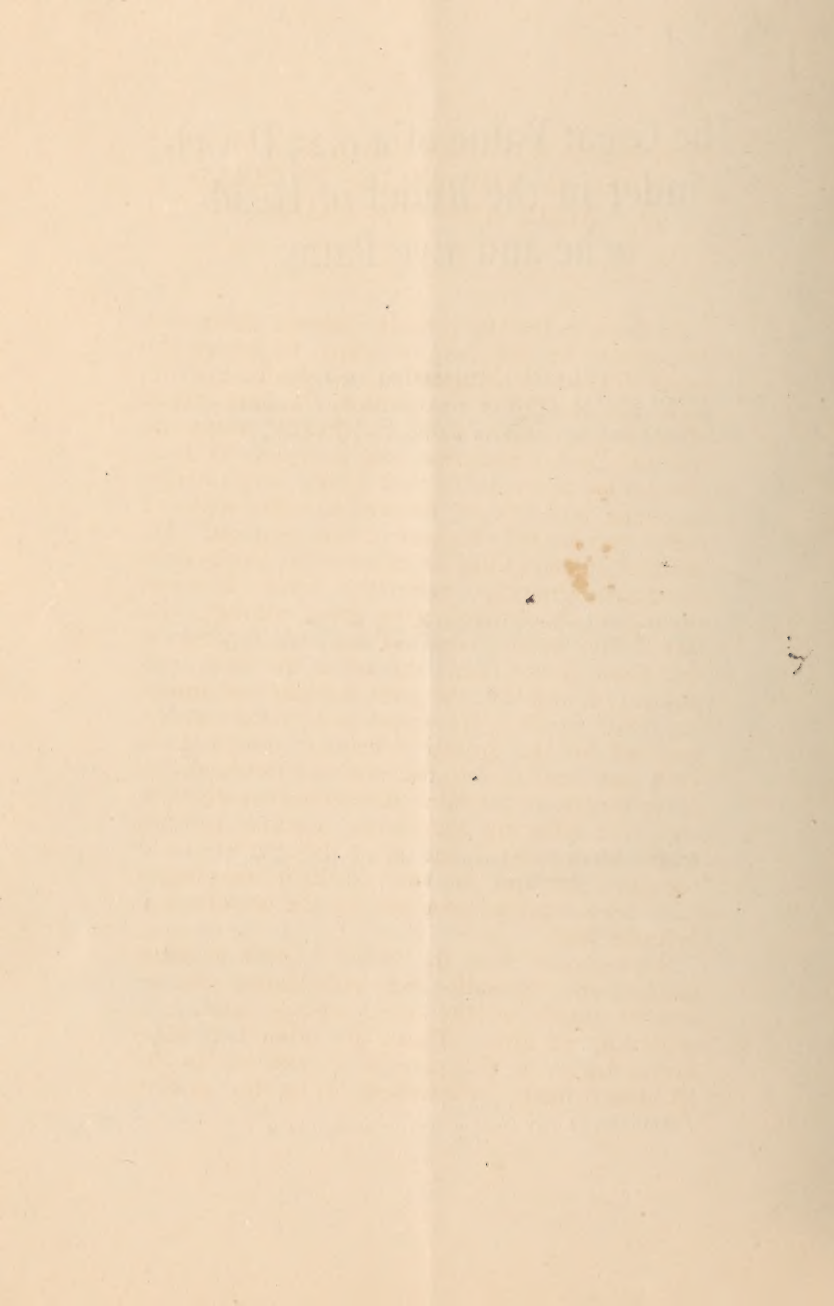
PROFESSOR OF EYE AND EAR DISEASES IN THE UNIVERSITY OF
MARYLAND, AND SURGEON-IN-CHIEF OF THE PRESBYTERIAN
EYE AND EAR CHARITY HOSPITAL OF BALTIMORE.

*Read in the Section on Ophthalmology and Otology, at the Thirty-
ninth Annual Meeting of the American Medical Association,
May, 1888.*

Reprinted from the "Journal of the American Medical
Association," October 27, 1888.

CHICAGO:
PRINTED AT THE OFFICE OF THE ASSOCIATION.
1888.





THE GREAT VALUE OF A 0.25 D. CYLINDER IN THE RELIEF OF HEAD-ACHE AND EYE PAINS.

In the selection of cylinder glasses, there is a disposition on the part of many to ignore the lesser degrees of astigmatism, as minor eye defects not worthy of recognition. I have heard often the expression from ophthalmic surgeons, that they never prescribe less than 0.5—D. lens, and am led to the belief that a very large number of young patients are allowed to suffer with eye faults uncorrected, because of this opinion. My practice and teaching for many years has been to recognize irregular refractive faults, however small, and by so doing give great comfort. In fact, I find as the result of my own experience, that these lesser faults are often the most complained of, and that the most marked and annoying reflex troubles are occasioned by the *smaller*, and not by the greater degrees of astigmatism. Pain not restricted to the eyes and forehead, but extending down the spine, disturbing the stomach, and even affecting the limbs, anxious troubles which have resisted the most thoughtful care of the physician and the skill of the gynæcologist, have been removed promptly by the use of a 0.25 cylinder lens.

Annoyances from the lower degrees of astigmatism are especially met with among the advanced pupils of the high schools, and more especially in girls. These are often hereditary faults found in the parents as well as in the children: never complained of by the parents

who have no cause for eye straining, but brought out conspicuously and annoyingly in the children under forced education. Under the long continued pressure of eye work, which the education of the period demands, very small faults will cause an accumulation of irritation which suddenly explodes, and forces a suspension of study. The continued eye tax of from ten to fourteen hours in the twenty-four will cause the eyes to break down; and then, when the eyes become irritable, even a few minutes of use will bring on eye pains with headache. Eyes heretofore very strong become so sensitive that exposure to daylight is painful, necessitating the use of smoked glasses.

Most of these students have $V. = \frac{20}{20}$, and can read No. 1 of the test types with readiness. Convex glasses would blur distant vision; a very weak concave might sharpen distant outlines. *The painful eyes of these patients, cured by weak cylinder glasses, show that the apparent perfect vision $V. = \frac{20}{20}$ is not incompatible with annoying astigmatism, the writings of specialists to the contrary notwithstanding.*

The usual history of such students is, that up to within a short period, they had perfect control of their eyes, and were in the habit of reading all day and half of the night, with only short intervals of rest. Recently when preparing for an examination, which called for an extra amount of application, their eyes have given way. Now they cannot read for ten minutes without pain and headache.

With a great many of these students the continuous use of a 0.25 cylinder, usually a concave lens, set horizontally, will promptly restore all suspended privileges, and in a very few days enable full work to be resumed. Experience also

teaches the wearer of these spectacles, that as long as hard work is continued these glasses cannot be dispensed with, even for a moment, without the return of eye and head pains.

It is very interesting to witness how rapidly the reflex irritations subside, when the irregular movements of the accomodating muscles are no longer called into play. Persons who could not look out into the sunshine before the consultation, find the weak cylinders and their restfulness more comfortable than the smoked glasses which they had been wearing.

It is also an experiment of very great interest in such small degrees of astigmatism as 0.25 cylinder will correct, the more especially if the angle of the fault be an oblique meridian, to note how the reversing of the lens, say from 30° to 150° , will instantly bring on eye pains and head confusions, and they become so uncomfortable that the patient cannot stand them. Then note the expressions of satisfaction when the lenses are replaced in their proper position. This experiment alone will attest the influence which the very weak cylinders exercise towards the comforting of aching eyes and heads. Even during the office consultation a difference is felt in loss of comfort as soon as the cylinder glasses are removed from the eyes.

I find myself frequently discarding + spherical glasses given for the correction of muscular accommodative astheropia, because with $V. = \frac{2}{3}\%$ the true cause of the painful eyes and head aches, which had continued, notwithstanding the use of the + s., *a low degree of astigmatism*, had not been found out, or had not been considered worthy of recognition by the specialist who preceded me in the treatment of the case.

I also find myself frequently substituting the

0.25 cylinder for the 0.5, which is the weakest lens that many ophthalmic surgeons prescribe. Patients who cannot use their eyes for even a few minutes with the 0.5—c., can read by the hour with the 0.25 c. When these patients are examined by the clock dial lines they will promptly discard the 0.5 in favor of the 0.25 in the uniform coloring of the lines.

Knowing by my every day experience, the value of the 0.25 cylinder lenses, also the great annoyance which this low degree of astigmatism produces under eye pressure, and being therefore constantly on the lookout for it, I can nearly formulate this proposition. Patients with $V. = \frac{20}{20}$, reading readily the finest print, with distant vision not much improved by + or — glasses, persons who cannot use their eyes for near work without pain, will be found on careful examination to have a low degree of astigmatism which a 0.25 cylinder will correct, to their very great comfort.

Often in testing these eyes which pain on use, they seem to possess perfect vision. In many the astigmatic dial will appear correct, all the lines seeming to be of uniform blackness. These are the patients to whom + spherical glasses are given by many ophthalmic surgeons, because the examination is deemed complete, and the low degree of astigmatism has not been detected. Put a 0.25 spherical lens before one eye, the other being closed, and the difference in the coloring of the lines will at once become prominent. *The latent, but painful astigmatism, becomes apparent.*

It is very important in the detection of these low degrees of astigmatism to close one eye. At times I find the error of refraction in one eye at right angles to the faulty meridian of the other. With both eyes open the clock dial lines are per-

fect, each eye seemingly correcting the fault of the other. Should the patient be examined with the two eyes directed to the astigmatic lines the cause of painful vision would remain unnoticed. It is only when one eye is closed that the fault becomes recognizable.

Even with the one eye the sharpness of outlines of the radiating lines will vary. First one, then another, seems better outlined as the ciliary muscle modifies the crystalline lens surface in its attempt at overcoming the fault in the cornea. After staring at the dial for some little time the true meridian fixes the best lines. The faulty lines do not always come out in gray, contrasting with the sharply cut black ones. Sometimes they appear as bright blue or red, and startle the patient by the contrast.

In correcting these weak degrees of astigmatism I find the use of atropia very misleading. Hence, as a rule, I do not use it in determining the kind, and the direction of the faulty focusing in cases of $V. = \frac{2}{2}^0$, unless glasses prescribed without the use of atropia, do not give the desired or expected comfort. When I speak of atropia I mean homatropia, which I have exclusively used for many years for refractive work. With very few exceptions the mydriatic reverses the kind and the direction of the faulty meridian. An astigmatism of 0.25 — c. o. becomes under atropia 0.25 + c. 90. In the majority of patients the reversed lens + c. does not give the degree of comfort in its use that the — c. will, the one which corresponded with the normal condition of the eye, before the atropia was used. I find these low degrees of astigmatism, as modified by atropia, a fictitious condition which will most frequently mislead the surgeon who accepts it. Should there be any doubt in the mind of the pa-

tient as to the exact angle of the fault, then atropia lends a valuable aid in determining it.

As this, however, is not intended for a paper on astigmatism, an important error of refraction, but is designed to call attention to the necessity of correcting the minor degrees of irregular refraction in patients who have $V. = \frac{2}{20}$, a condition which many ophthalmic surgeons ignore, my object can be best illustrated by giving a synopsis of my individual office work for 1888. This list refers to private practice only, and does not include the many cases of astigmatism, worked out by my assistants at the Presbyterian Eye and Ear Charity Hospital where my dispensary work is done. In my office case-book for the year 1887, I have recorded the history of 493 persons for whom I have prescribed cylinder glasses. As in many of these persons each eye differed both as to the kind, the degree and the angle of the irregular refraction, I have thought it best in tabulating my astigmatic work, to refer to the 986 eyes rather than to the 493 persons. All of these patients sought advice for the relief of eyes which were painful on use. I used atropia on 135 of the 493 persons, in about 27 per cent. of the cases. These were pay patients who expected relief. Had the glasses prescribed not given comfort, they would have returned for further treatment, and I would then have used atropia to sustain, correct, or to modify my first diagnosis. I must therefore believe that the majority of the glasses prescribed, without the use of homatropia instillations, were satisfactory. In a great many instances I have evidence of the entire comfort secured, and the perfect control regained over the eyes even months after the glasses 0.25.—c. were given.

TABLE Showing the Degree of Astigmatism in 986 Eyes Prescribed for in the Office
Practice of Dr. J. J. Chisolm, of Baltimore, Md., during the year 1887.

No.	ANGLE.	No.	DEG.
267	— 0.25°.	546	0.25. D.
90	— 0.25 ^{90°} .	171	0.5. D.
79	— 0.25 oblique.	66	0.75. D.
29	+ 0.25°.	60	1. . D.
85	+ 0.25 ^{90°} .	35	1.25. D.
16	+ 0.25 oblique.	22	1.5. D.
63	— 0.5°.	10	1.75. D.
23	— 0.5 ^{90°} .	27	2. . D.
37	— 0.5 oblique.	8	2.25. D.
6	+ 0.5°.	11	2.5. D.
28	+ 0.5 ^{90°} .	5	2.75. D.
14	+ 0.5 oblique.	12	3. . D.
23	— 0.75°.	6	3.5. D.
9	— 0.75 ^{90°} .	2	4. . D.
15	— 0.75 oblique.	1	5. . D.
4	+ 0.75°.	1	5.5. D.
10	+ 0.75 ^{90°} .	3	6. . D.
7	+ 0.75 oblique.		
15	— 1.°.		
6	— 1. ^{90°} .		
15	— 1. oblique.		
1	+ 1.°.		
13	+ 1. ^{90°} .		
10	+ 1. oblique.		
9	— 1.25°.		
5	— 1.25 ^{90°} .		
12	— 1.25 oblique.		
0	+ 1.25°.		
5	+ 1.25 ^{90°} .		
4	+ 1.25 oblique.		

TABLE Showing the Direction of the Error of Refraction.

Of the 986 eyes, all of them more or less painful in use, so that relief was sought, 546 indicated an error of refraction which a 0.25—cylinder corrected. Had I not sought for, and found this small error, which in the relief given proved to be the cause of all discomfort, I would have turned away nearly two-thirds of my patients unrelieved. Some of these patients brought painful eyes and 0.5 cylinders prescribed by ophthalmic surgeons of deservedly high standing. The change from the 0.5 + or — cylinder lens which over corrected, to the 0.25 cylinder which made the lines on the dial uniform, removed at once the discomfort complained of. It enabled patients to read by the hour when with the stronger glasses they could not use their eyes at all. This magical and immediate change was brought about by no other treatment than the recognition of the low degree of astigmatism, and the substitution of 0.25 for 0.5 cylinder. In some cases of defective vision sight would be improved from $\frac{1}{3}\frac{5}{0}$ to $\frac{1}{4}\frac{5}{5}$ by these weak cylinders.

As I have been pursuing this line of investigation for several years, and have learned to suspect low degrees of astigmatism in eyes painful in use, which exhibited $V. = \frac{2}{2}\frac{0}{0}$, in seeking for it I find it. I could readily, from my case-book, give the detailed account of hundreds of patients, who, from not being able to read for more than a few minutes without glasses, could by the aid of a 0.25 cylinder, read for many hours.

It is only necessary to call attention to the frequency, and to the annoyance of these small degrees of astigmatism to have others find them as frequently as I do. The more familiar one becomes with these minor defects the more readily are they detected. I am sure that every month's experience adds to my facility, and also to the

number of cases seeking advice. For the year 1887, 546 painful eyes showing only 0.25 D. fault were prescribed for in my private practice, and were relieved.

Through this paper I desire to impress others with my conviction, that painful eyes with $V. = \frac{2}{20}$ very frequently means astigmatism. Also that experience will show, that the most useful cylinder for the correction of eye and head pains in this very large number of patients, is the 0.25 D. cylinder. From my standpoint it becomes the most valuable astigmatic lens of the Trial Case.

DR. H. CULBERTSON: As to the 0.25 diopter being the more useful of lenses in the correction of ametropia, I can verify Dr. Chisholm's position to the letter. Not infrequently I can double vision with a D. 0.25 + or negative. As to the correction of ametropia upon the apparent refraction of an eye, I would say that I have not infrequently been compelled to do this after having used mydriatics and when the latter denoted the employment of different glasses.

As to binocular astigmatism, I must assure the Section, and especially Dr. Savage, that my views are original on this subject, and that I had not seen his article on this theme until he kindly presented me with a copy since I read my paper before the session. The doctor and myself have both been engaged in investigating this form of ametropia for about the same length of time and independently and unknown to each other.

Being a devotee to truth and not wedded to any solution of the *modus operandi* of binocular astigmatism, or claiming in my paper more than a hypothesis as to the cause of this anomaly, I can only learn with pleasure of the views of Dr. Savage. In looking over his brochure on this subject

hastily I understand that gentleman to hold that the entire phenomena of binocular astigmatism is due to anomalies of the four oblique muscles. If I am correct in this inference, I am compelled to differ on this point, believing that the state of the recti are concerned in this anomaly not infrequently, as well as the oblique. The five-minute rule will not permit me to enlarge upon my views on this point.

As to the relation of the ciliary muscle to this anomaly I cannot now state a positive opinion, for my investigations as yet do not permit me to say that it has not a positive or negative influence in the phenomena of binocular astigmatism. As for myself, future investigations must determine this point.

